

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-15. (Cancelled)

16. (Currently Amended) ~~A system according to claim 15, An electrooptical system containing:~~

(a) ~~a twisted nematic liquid-crystal layer, with an input side and an output side, which is positioned between a first substrate and a second substrate, each of whose inside surface is provided with an electrode coating and an alignment layer thereon, the director of said liquid crystal layer having a parallel edge alignment and a twist angle of $0^\circ \leq \beta \leq 60^\circ$ or a homeotropic edge alignment, and~~

(b) ~~at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,~~

I. ~~wherein, in order to achieve high contrast, and/or high brightness, and/or high viewing angle independence of the contrast and/or the color values, the angle ψ , which the polarization device on the input side of the liquid crystal layer forms with the director of the liquid-crystal molecules on the surface of the first substrate, satisfies~~

I.A. condition (1) or (2)

$$\psi = (\beta + 90^\circ)/2 \pm 10^\circ \quad (1)$$

$$\psi = \beta/2 \pm 10^\circ \quad (2)$$

~~where a polarization device is present on both the light input side of the liquid crystal layer and the light output side of the liquid crystal layer, and the polarization device on the output side of the liquid crystal layer is rotated by $90^\circ \pm 10^\circ$ with respect to the polarization device on the input side of the liquid crystal layer, and, optionally, alignment of the polarization devices on the input side and the output side of the liquid crystal layer are interchanged, or satisfies~~

I.B. condition (3) or (4)

$30 \leq \psi \leq 70^\circ$ for $0 \leq \beta \leq 45^\circ$ (3)

$35 \leq \psi \leq 90^\circ$ for $45 \leq \beta \leq 60^\circ$ (4),

where a polarization device is only present on the input side, and

wherein the electrooptical system further contains one or more compensation layers for compensating the optical path difference of the liquid-crystal layer $d \cdot \Delta n$

I. wherein the compensation layer comprises a material having three optical refractive indices, of which one is less than the other two, and wherein the optical axis corresponding to this lowest refractive index is essentially parallel to the surface of said second substrate or forms an angle of $2^\circ < \gamma < 60^\circ$ with the surface of said second substrate,

as a result of which, the angle between the optical axis of the compensation layer and the optical axis of the liquid-crystal layer, upon application of a voltage, passes through a minimum, and

II. wherein the plane set up by the two other refractive indices forms an angle of between 30° and 150° with the director of the liquid-crystal at the surface of the second substrate.

17-18. (Cancelled)

19. (Currently Amended) A system according to claim 15, wherein the twist angle β is A system according to claim 15, An electrooptical system containing:

(a) a twisted nematic liquid-crystal layer, with an input side and an output side, which is positioned between a first substrate and a second substrate, each of whose inside surface is provided with an electrode coating and an alignment layer thereon, the director of said liquid crystal layer having a parallel edge alignment and a twist angle of $0 \leq \beta \leq 15^\circ$ or a homeotropic edge alignment, and

(b) at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,

I. wherein, in order to achieve high contrast, and/or high brightness, and/or high viewing angle independence of the contrast and/or the color values, the angle ψ , which the polarization device on the input side of the liquid crystal layer forms with the director of the liquid-crystal molecules on the surface of the first substrate, satisfies

I.A. condition (1) or (2)

$$\psi = (\beta + 90^\circ)/2 \pm 10^\circ \quad (1)$$

$$\psi = \beta/2 \pm 10^\circ \quad (2)$$

where a polarization device is present on both the light input side of the liquid crystal layer and the light output side of the liquid crystal layer, and the polarization device on the output side of the liquid crystal layer is rotated by $90^\circ \pm 10^\circ$ with respect to the polarization device on the input side of the liquid crystal layer, and, optionally, alignment of the polarization devices on the input side and the output side of the liquid crystal layer are interchanged, or satisfies

I.B. condition (3) or (4)

$$30^\circ \leq \psi \leq 70^\circ \text{ for } 0^\circ \leq \beta \leq 45^\circ \quad (3)$$

$$35^\circ \leq \psi \leq 90^\circ \text{ for } 45^\circ \leq \beta \leq 60^\circ \quad (4),$$

where a polarization device is only present on the input side.

20. (Currently Amended) A system according to claim 19-15, wherein the twist angle β is $0^\circ \leq \beta \leq 5^\circ$.

21. (Currently Amended) A system according to claim 19-15, wherein the twist angle β is essentially 0° .

22-27. (Cancelled)

28. (Currently Amended) A projection device containing a system according to Claim 19-15.

29. (Currently Amended) System according to claim 16, ~~characterised in that~~

wherein the compensation layer is based on a thermoplastic polymer, a low-molecular-weight liquid crystal and/or a liquid-crystalline polymer.

30. (Cancelled)

31. (Currently Amended) System according to claim 19 ~~15~~, ~~characterised in that wherein~~ the system contains only one polarization device and at least one reflector.

32-33 (Cancelled)

34. (New) An electrooptical system containing

- a twisted nematic liquid-crystal layer having a director, with an input side and output side, which is positioned between a first and a second substrates, each of whose inside surface is provided with an electrode coating and an alignment layer thereon, the director of said liquid crystal layer having a parallel edge alignment and a twist angle of $0^\circ \leq \beta \leq 100^\circ$,
- one or more compensation layers for compensating an optical path difference of the liquid-crystal layer $d \cdot \Delta n$, and
- at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,

wherein the angle φ which the at least one polarization device forms on an input side of the liquid-crystal layer for light with the director of the liquid-crystal layer on a first substrate surface satisfies condition (1) or (2)

$$\varphi = (\beta + 90^\circ)/2 \pm 10^\circ \quad (1)$$

$$\varphi = \beta/2 \pm 10^\circ \quad (2)$$

and,

in the situation wherein at least one polarization device is present on the input side of the liquid-crystal layer for light and at least one polarization device is present on the output side of the liquid-crystal layer for light, the at least one polarization device on the output side of

the liquid-crystal layer is rotated by $90^\circ \pm 10^\circ$ with respect to the at least one polarization device on the input side of the liquid-crystal layer, and wherein optionally the alignment of the at least one polarization device on the input side and the at least one polarization device on output side of the liquid-crystal layer are interchanged,

or

in the situation wherein at least one polarization device is present only on the input side of the liquid-crystal layer, satisfies condition (3) or (4)

$$30 \leq \varphi \leq 70^\circ \text{ for } 0 \leq \beta \leq 45^\circ \quad (3)$$

$$35 \leq \varphi \leq 90^\circ \text{ for } 45 < \beta < 100^\circ \quad (4)$$

wherein the one or more compensation layers are based on a twisted nematic liquid crystal, the twist angle β' of the one or more compensation layers have essentially the same absolute value but the opposite rotational sense as β , and wherein the director of the liquid-crystal molecules of the liquid-crystal layer and the optical axes of the one or more compensation layers form an angle of 30° to 150° at the surfaces of the second substrate.

35. (New) An electrooptical system containing

- a twisted nematic liquid-crystal layer having a director, with an input side and output side, which is positioned between a first and a second substrates, each of whose inside surface is provided with an electrode coating and an alignment layer thereon, the director of said liquid crystal layer having a parallel edge alignment and a twist angle of $0^\circ \leq \beta \leq 100^\circ$,
- one or more compensation layers for compensating an optical path difference of the liquid-crystal layer $d \cdot \Delta n$, and
- at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,

wherein the angle φ which the at least one polarization device forms on an input side of the liquid-crystal layer for light with the director of the liquid-crystal layer on a first substrate surface satisfies condition (1) or (2)

$$\phi = (\beta + 90^\circ)/2 \pm 10^\circ \quad (1)$$

$$\phi = \beta/2 \pm 10^\circ \quad (2)$$

and,

in the situation wherein at least one polarization device is present on the input side of the liquid-crystal layer for light and at least one polarization device is present on the output side of the liquid-crystal layer for light, the at least one polarization device on the output side of the liquid-crystal layer is rotated by $90^\circ \pm 10^\circ$ with respect to the at least one polarization device on the input side of the liquid-crystal layer, and wherein optionally the alignment of the at least one polarization device on the input side and the at least one polarization device on output side of the liquid-crystal layer are interchanged,

or

in the situation wherein at least one polarization device is present only on the input side of the liquid-crystal layer, satisfies condition (3) or (4)

$$30 \leq \phi \leq 70^\circ \text{ for } 0 \leq \beta \leq 45^\circ \quad (3)$$

$$35 \leq \phi \leq 90^\circ \text{ for } 45 < \beta < 100^\circ \quad (4)$$

wherein the one or more compensation layers are based on a material that has three optical refractive indices, of which one is less than the other two, the optical axis corresponding to this lowest refractive index is essentially parallel to the surface of said second substrate or forms an angle of $2^\circ \leq \tau < 60^\circ$ with the surface of said second substrate, as a result of which the angle between the optical axes of the one or more compensation layers and the optical axis of the nematic liquid-crystal layer upon application of a voltage passes through a minimum, and wherein the plane set up by the two other refractive indices with directors of the liquid crystal molecules of the liquid-crystal layer forms an angle of between 30° and 150° at the surfaces of the second substrate.

36. (New) An electrooptical system containing

- a twisted nematic liquid-crystal layer having a director, with an input side and output side, which is positioned between a first and a second substrates, each of whose inside surface is provided with an electrode coating and an alignment layer thereon, the director of said liquid crystal layer having a

- parallel edge alignment and a twist angle of $0^\circ \leq \beta \leq 100^\circ$,
- one or more compensation layers for compensating an optical path difference of the liquid-crystal layer $d \cdot \Delta n$, and
- at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,

wherein the angle φ which the at least one polarization device forms on an input side of the liquid-crystal layer for light with the director of the liquid-crystal layer on a first substrate surface satisfies condition (1) or (2)

$$\varphi = (\beta + 90^\circ)/2 \pm 10^\circ \quad (1)$$

$$\varphi = \beta/2 \pm 10^\circ \quad (2)$$

and,

in the situation wherein at least one polarization device is present on the input side of the liquid-crystal layer for light and at least one polarization device is present on the output side of the liquid-crystal layer for light, the at least one polarization device on the output side of the liquid-crystal layer is rotated by $90^\circ \pm 10^\circ$ with respect to the at least one polarization device on the input side of the liquid-crystal layer, and wherein optionally the alignment of the at least one polarization device on the input side and the at least one polarization device on output side of the liquid-crystal layer are interchanged,

or

in the situation wherein at least one polarization device is present only on the input side of the liquid-crystal layer, satisfies condition (3) or (4)

$$30 \leq \varphi \leq 70^\circ \text{ for } 0 \leq \beta \leq 45^\circ \quad (3)$$

$$35 \leq \varphi \leq 90^\circ \text{ for } 45 < \beta < 100^\circ \quad (4)$$

wherein the one or more compensation layers are based on a material that has three optical refractive indices, of which one is lower than the other two, the optical axis corresponding to this lowest refractive index is essentially perpendicular to the surface of said second substrate.

37. (New) A system according to Claim 34, wherein the twist angle is $5^\circ \leq \beta \leq$

60°.

38. (New) A system according to Claim 34, wherein the system contains one polarization device and at least one reflector.

39. (New) A compensation layer for compensating the optical path difference of an electrooptical system, containing a

- a twisted nematic liquid-crystal layer, having a director, which is positioned between a first and a second substrate, each of whose inside is provided with an electrode coating and an alignment layer thereon, the director of said liquid-crystal layer having a parallel edge alignment and a twist angle $0^\circ \leq \beta \leq 100^\circ$, and
- at least one device for linear polarization of light in such an arrangement that light, before entering and after exiting the liquid-crystal layer, passes through a polarization device,

wherein the compensation layer is based on a material that has three optical refractive indices, of which one is less than the other two, an optical axis corresponding to this lowest refractive index is essentially parallel to the surface of said second substrate or forms an angle of $2^\circ \leq \tau \leq 60^\circ$ with the surface of said second substrate, as a result of which the angle between the optical axes of the compensation layer and the optical axes of the nematic liquid-crystal layer upon application of a voltage passes through a minimum, and plane set up by the two other refractive indices with directors of the liquid-crystal molecules of the liquid-crystal layer forms an angle of between 30° and 150° at the surfaces of the second substrate.